

ABSTRACT

Conventional light emitting diode designs combined with blue light emitting diodes tend to lack in decorativeness and warmth. The present invention aims at providing a white light emitting diode for emitting white light with warmth at a higher luminance, and an intermediate color light emitting diode satisfying light emission in diversified color tones at a higher luminance.

The solving means resides in adoption of a fluorescent material which is configured to emit yellowish red or red light and which comprises a CaAlSiN_3 crystal phase including, dissolved therein in a solid state, one kind or two or more kinds of element(s) selected from Mn, Ce, Pr, Nd, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb, and Lu, in a manner that the fluorescent material is mixed with another fluorescent material configured to emit green, yellowish green, or yellow light, and that the mixedly obtained phosphor is combined with a semiconductor light emitting element configured to emit bluish purple or blue light, to thereby fabricate a white light emitting diode for emitting white light with warmth at a high efficiency.